The Excavating Engineer

PUBLISHED MONTHLY

Ten Cents Per Copy *One Dollar Per Year*

Vol. 12 **MILWAUKEE, NOVEMBER 1915** **No. 2**

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ADDRESS ALL COMMUNICATIONS TO
THE EXCAVATING ENGINEER PUBLISHING COMPANY
BRADLEE VAN BRUNT, Manager and Editor
267 NATIONAL AVENUE MILWAUKEE, WIS., U. S. A.

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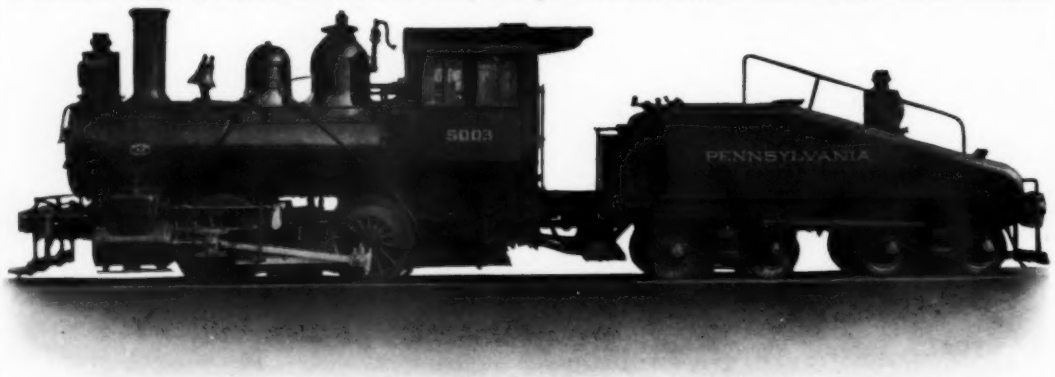

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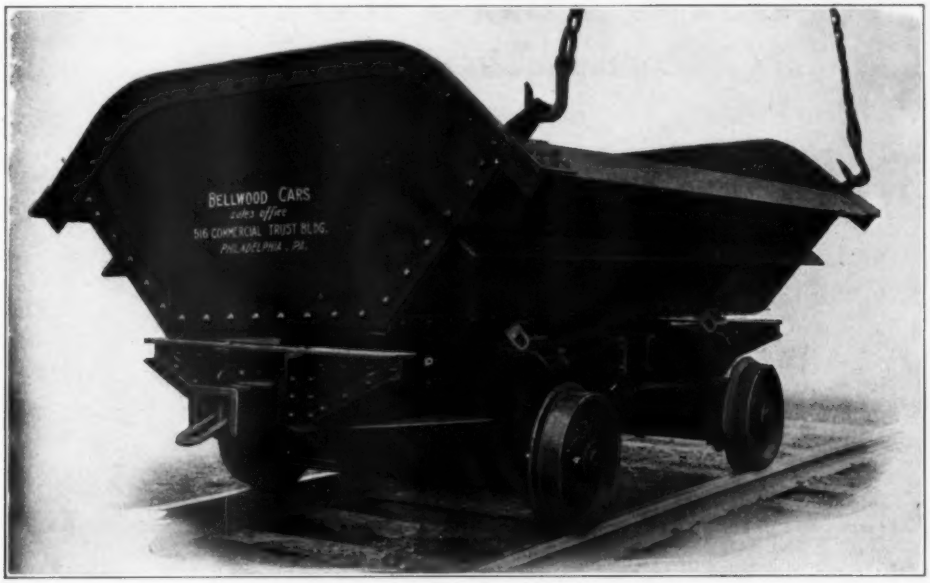

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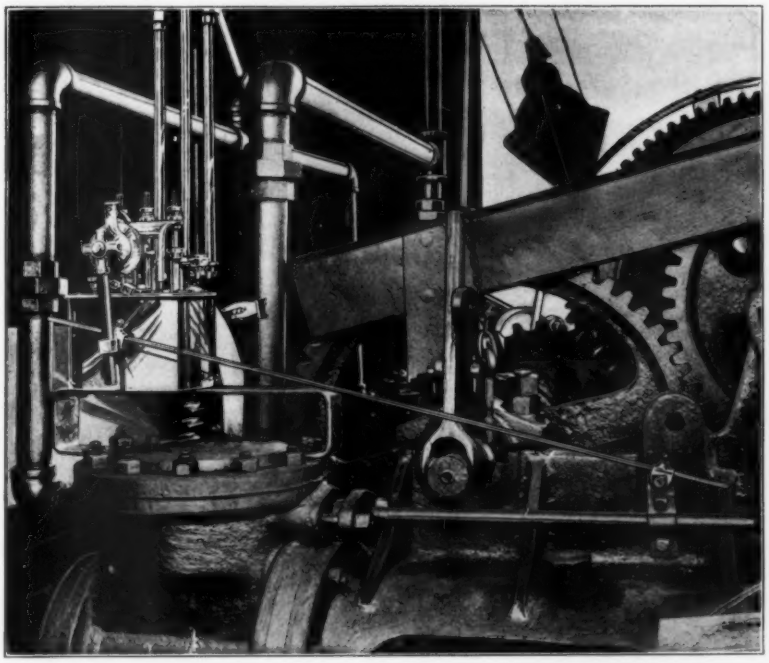

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Bucyrus Class-7 Dragline Among the Stumps in Timbered Muskeg

Bucyrus Class-7 Dragline Making Curve, Mile 88
Digging the Winnipeg Aqueduct

621.86
J Ex 2

The Excavating Engineer

Vol. 12 NOVEMBER, 1915 No. 2

The Greater Winnipeg Water District

By Wm. Smaill, Supt. Winnipeg Aqueduct Construction Company, Ltd.

With special reference to the work of the Winnipeg Aqueduct Construction Company, Limited, and the use of small dragline excavators.

THE Greater Winnipeg Water District consists of the cities of Winnipeg and St. Boniface together with five other surrounding municipalities and was created by act of the Legislative Assembly on February the 15th 1914. There were several schemes advocated. Mr. T. R. Deacon, C. E., who was mayor of the City of Winnipeg at the time, had in the early days been an engineer and land surveyor working in the Lake of the Woods and Shoal Lake region, and for some years he had felt that this body of water was an ideal one for the water supply for the City of Winnipeg. It was mainly on his insistence that a feasible gravity route could be found that a location party was sent out on this line and Shoal Lake finely chosen by the District as the source of its supply, permission being obtained from the International Joint Waterways Commission to divert the water.

Steel Forms, Completed Aqueduct and Mixer Plant

The Construction Railroad

The line runs through a practically new country and is 97.2 miles long. To aid in the construction of the aqueduct a railroad paralelling the aqueduct at 110-foot centers was built. Without this road it would be practically impossible to carry out the work as most of the line runs through muskeg and swamp country, impassable with teams except in winter. The railroad has about 102 miles of track which cost about $1,225,000. It was built under contract by the Northern Construction Company of Winnipeg, who started laying track in June 1915 and finished in December 1915, rather a remarkable record when one considers the nature of

Class-7 Among the Boulders—Piece Alongside Bucket Contains 6 Cubic Yards

Moving a Class-7 Across Birch River Railway Bridge

the country and difficulties of getting in men and supplies. Besides grading the road, a large number of drainage off-take ditches had to be dug to drain the surface partially so that work could be carried on.

Preliminary Work

The intake of the aqueduct is at Indian Bay and near this point the Falcon River, draining some fifty square miles of muskeg country, empties its highly coloured water. To divert this stream away from the intake a dyke was built 7,500 feet long and a diversion canal dug through to Snowshoe Bay, which places the discharge of this river some miles away on the shore line from the intake of the aqueduct. The dyke was built by Tomlinson and Fleming of Toronto, using a 60-ton shovel, four-yard cars and dumping off a scow at the end of the dyke. The diversion canal was contracted for by J. Anderson of Kenora, Ont., using a floating dredge with a one cubic yard bucket.

The Aqueduct

The aqueduct proper, which is 85.04 miles in length between Shoal Lake and the reservoir at Deacon, is being built of concrete, the section being arched or horse shoe shaped on gravity flow sections and circular at depressed sections, under rivers, etc. It is designed for a maximum rated capacity of 85,000,000 imperial gallons per day. There are two venturi-meters, eight blow-offs and over-flow weirs, five depressed river crossings, manholes every mile and siphon culverts under aqueduct at all ditch and creek crossings.

The aqueduct in gravity flow sections will have an air space on top, and in no place less than four feet of earth cover for frost protection. The invert is laid in fifteen feet sections and the arch finished in 45 feet sections.

The depth of excavation varies from just the removal of top soil, to 26 feet and contains almost all discriptions of material from rock to quicksand.

The western twenty miles is on prairie and the contractors, J. H. Tremblay & Co., of Winnipeg, are excavating by means of station men and teams and on the heavier cuts using a special type of walking dredge, designed and built by a sub-contractor on this work. The next section, or Contract 31, is being handled by Thos. Kelly & Sons of Winnipeg by means of station men, teams and in heavier cuts by specially designed Thew shovels. This contract is part prairie and part muskeg.

Contract of the Winnipeg Aqueduct Construction Co., Ltd.

Contracts 32, 33 and 34, comprising over 47 miles, have been let to the Winnipeg Aqueduct

Class-7 Digging Muskeg and Roots

Construction Company, Limited, being a combination of the Northern Construction Company and Carter-Halls-Aldinger Company, both of Winnipeg. This was the only firm to bid on all of the work but were only successful in obtaining three contracts. On most of these 47 miles, the upper protion of the excavation is all muskeg, some places as deep as sixteen feet. The muskeg is really a peat bog, covered with heavy moss and saturated with water, with any old kind of soil underneath. It is probably the meanest kind of country that is known for anyone to try and walk through.

work costs about $12.00 per ton, so the contractors have equipped these machines with horizontal boilers, having shaking grates and using natural draft, feed water heater, pump and oil filter for feed water, boilers and steam piping being lagged. They are satisfied that the additional cost was a wise investment.

These machines, known as class-7 draglines, of which there are five in use on this work, are averaging about 400 yards excavation per day with a coal consumption of about 1,500 pounds; one runner one day moved 800 cubic yards with coal consumption

Bucyrus Class-14 Dragline in 10-foot Cut of Clear Muskeg

The Dragline Excavators

The contractors concluded that it would pay them to get a special class of excavator for use on this work, finally settling on a machine, the design of which was submitted by the Bucyrus Company and has since been found in every way suitable for the work in hand. The machines have several ideas not in general use on excavating machines of this kind. The first thing that would strike one accustomed to excavating machinery, is the long smokestack sticking out of the roof. The coal used on this less than one ton. To support the machines, which weigh about thirty tons and to facilitate moving in this boggy country, they are mounted and rotate on a structural steel base to which is securely bolted timber skids with oak shoes; under these are placed 6-inch heavy pipe rollers that run on 4 by 10 inch planks placed on what is really a heavy plank raft made in sections 8 feet by 20 feet. These sections or pads are moved by attaching chains to U bolts that are securely fastened in the pads at balancing points, hooks in the chains being thrown

over the sides of the bucket. The arrangement of the chains is such that the first strain raises one edge of the pad breaking the suction and then the pad rises in a slanting position which when slung around to the rear of the machine is in the proper position to fit up against the pad already in place. The whole operation of making a move generally takes about three minutes. The rollers are carried to the rear by the two ground men walking on the edge of the raft or platform. The buckets are all of the latest Bucyrus type with high arch and curved back. They fill themselves in any kind of ground and dump clean.

Method of Handling Pads

In order that the necessary amount of daily lineal feet of progress can be made, where the excavation runs between ten and fifteen feet deep, a Bucyrus class-14 dragline is used mounted in the same manner as the class-7 and with identical fuel saving devices. This machine has dug over 1,500 cubic yards in ten hours and has a daily average of over 1,000 yards with a coal consumption of about 3,000 pounds.

In order to drain the surface water on the eastern portion of this work in preparation for the big cut which will be started next season, the contractors have dug about 4½ miles of pilot ditch with a small gasoline dredge. The big cut will be handled by two larger draglines recently purchased from the Bucyrus Company. A class-20 dragline with an 85-foot boom and a 2½ yard bucket is to work where the depth of cut does not exceed 18 feet and the top width of the trench, 65 feet. A class-24 with a 110-foot boom and a 3½ yard bucket will handle the heavier cut where the top width of the trench will probably run as wide as 90 feet.

Sand and Gravel Plant

The District has opened a large deposit of sand and gravel at a point where the average haul is about 37 miles to points of delivery. At this pit there has been erected a sorting, crushing and mixing plant. The gravel is excavated by means of a standard Browning revolving steam crane, using a 1½-yard bucket delivering the run of pit sand and gravel to six-yard cars. These cars are handled by dinkeys and run up a slight inclined trestle to the sorting plant, where the load is dumped over an inclined grizzly, oversized going to a crusher. The mixed material is elevated to sizing screens and delivered into bins from which the relative proportions of the different sizes required to form the aggregate are delivered onto a belt and thence to a storage bin. From the storage bin the aggregate is drawn into standard air-dump cars of 20 cubic yard capacity, and is delivered by the District to contractors' platforms alongside of the track at the different jobs.

The price on all contracts for gravel is the same, the District charging for the aggregate at the rate of 75 cents for the contained sand and the same amount for the gravel. Tested cement is also sold to the contractors for the cost of delivery and the contractors are credited with the amount of cement that should go into the payment lines. While it is customary in many cases to furnish cement to contractors, this is the first instance the writer knows of that a tested aggregate has been supplied. The quantities used are the result of a long series of tests and studies for the proportions giving the best result for strength and water-tightness.

Concrete Work

Blaw steel collapsible forms are used by all the contractors in the standard arched sections.

Methods of mixing and placing are practically similar on the two western contracts. Aggregate is dumped alongside the tracks and handled to mixer by means of an American Hoist and Derrick Co's travelling derrick. The mixer, water tank and small cement storage pile being placed on a standard flat car moving alongside the aqueduct and track.

Typical Concrete Plant, Showing Completed Aqueduct, Gravel Platform, Cement Shed, Mixer, Gas Dinkey, Cars and Track

On the work of the Winnipeg Aqueduct Construction Co., owing to the soft and wet nature of most of the ground, a heavy travelling plant of this nature was not considered feasible. The contractors at each opening have built a platform 600 feet long along side the railway track to receive aggregate dumped from gravel trains. At the center of this platform a mixer has been erected and elevated high enough to dump concrete into 30-cu. ft. capacity steel hopper dump cars. The operation is as follows:—The aggregate is loaded into small hopper cars and pushed to mixer skip into which it is dumped along with cement and hoisted up into the mixer. From the mixer it is hauled in 30-cu. ft. hopper cars by means of gasoline dinkeys, manufactured by J. D. Fate & Co., Plymouth, Ohio. The excavated material having been piled alongside the ditch by means of the dragline and the top of side nearest the railway track where mixer is set graded off for the track, this in drying left a good road bed along which the concrete trains are run. The concrete is deposited through steel chutes into the steel forms. On this track is also placed a small ¾-ton capacity derrick car for the handling of the outside steel forms. Concrete is delivered about ¾ of a mile in each direction from these central mixing plants.

Steel forms were formerly handled in sections by means of a small travelling derrick. This method was found too slow and too expensive and a light steel traveller was devised in its place. This traveller lifts a 45-foot section bodily and carries it to where it is needed by running on a 20-pound rail spiked to 4 by 10 inch planks laid in a ditch alongside the aqueduct.

Progress of Excavation

By the use of the draglines, the contractors dig the ditch and from the excavated material make the grade upon which the concrete material is delivered and the steel forms handled.

The progress of excavation for this season is so

Class-7 in Hardpan

Camp No. 5

far ahead of what concrete could be placed, that the class-14 dragline has been moved to one side of the trench and is starting a pilot ditch, which will remove about one-third of the excavation scheduled for next year's work and will lower the water plane from about 6 to 7 feet, which will leave the banks dry and firm enough to move the machines back next spring and complete the excavation. The class-7 draglines are now busy back-filling the completed aqueduct. After several trials a satisfactory method of doing this work has been found without the necessity of changing the machines.

The Construction Camp

The camps of the Winnipeg Aqueduct Construction Co. are all built in sections as they will be required to be moved each year. The bunkhouses have double-decked steel bunks. Outside lavatories and shower baths are provided. All garbage and night soil is incinerated. At headquarters, on the Whitemouth River, there is a carpenter shop to build special forms, etc., also blacksmith, machine shop and oxy-acetylene welding outfit for repairing work.

Natural Gas as a Steam Shovel Fuel

It is an unusual occurance when construction work is so situated that it is possible to use natural gas as a fuel for steam shovels. Such was the case, however, a short time ago on the construction of a portion of the Ridge Road about 70 miles north of Los Angeles, in Southern California. The gas main from the oil fields paralleled the line for some distance where the heavy excavation was encountered. The normal pressure in these mains was 180 pounds. This was cut down to 10 pounds at the steam shovel burners by a reducing valve. These burners after some experimenting, gave very satisfactory combustion. The Gas Company sold the gas to the contractor at a flat rate per shovel. A Bucyrus 60-C and a Marion model-40 were used.

"Does it cost much to feed the giraffes?"

"No; you see a little goes a long ways with them."—Harvard Lampoon.

Hunt-Forbes' Bucyrus Shovel Completing the First Cut Preliminary to Crossing Trestle, See View on Page 57

Langhorne, Langhorne Co. & Sneed's 80-C Bucyrus in Action in a Side Hill Rock Cut on Section Two. The Material is 85% Solid Rock

Building the Chesapeake & Ohio Northern Railway

Shovel work on the new 28-mile line between Sciotoville and Waverly, Ohio. Much heavy work under way. Description of the contracts.

THE construction of the first 28 miles of the Chesapeake & Ohio's proposed 96-mile line in Ohio, known as the Cheasapeake & Ohio Northern Ry. is of special interest at this time as it is one of the very few big pieces of railroad work that has been under way during the present season. Its construction, furthermore, has developed a number of interesting problems.

This new line has been planned to afford the Chesapeake & Ohio Ry. an outlet to the Great Lakes. Construction starts near Edgington on the main line of the C. & O., just across the Ohio River in Kentucky. From here it crosses the Ohio River near Sciotoville, Ohio, and runs in a general northerly direction, 28 miles, to Waverly, Ohio, following for a portion of the way, the valleys of the Little Scioto

W. W. Boxley's Fill at Half Final Height at South Approach of Ohio River Crossing, Section One

River and of a small stream known as Rocky Fork. At Waverly, trackage rights are obtained over the Norfolk & Western to Columbus, where connection is made with the Hocking Valley to Toledo. A survey has been made by the C. & O. for the remaining 68 miles between Waverly, Columbus, but the construction of this is still in the future.

Bids on this work were taken last year, but on account of the financial depression and other difficulties, contracts were not finally let until April of this year. The construction calls for about 4,000,000 cubic yards of excavation and 60,000 cubic yards of concrete.

The excavation work is divided into four sections. Section 1 was awarded to W. W. Boxley of Roanoke, Va., Section 2 divided between Rinehart and Dennis of Charlottesville, Va. and Winston & Company of Richmond, Va., Section 3 to Winston & Company, and Section 4 to Robert Grace Contracting Company

Borrow Pit for Fill for South Approach of Ohio River Crossing, W. W. Boxley, Contractor, Section One

of Pittsburgh, Pa. A good portion of this work was sub-let as described herein.

W. W. Boxley

Beginning at the extreme southern end of the line, W. W. Boxley of Boxley, Goodwin & Bray, is handling that portion of Section 1 from the C. & O. main line near Edgington, Ky. to the Ohio River Crossing. This consists of a fill 1¾ miles long containing about 500,000 cubic yards of material. At the present time this is 50% complete. At its highest point this fill will be 52 feet above the present ground level. The borrow pit is between the fill and the river.

Boxley is using one Marion model-61 steam shovel with two trains of six 12-yard Western air-dump cars each and a Western spreader. They are averaging about 40,000 cubic yards per month working 10-hour shifts, six days per week.

Concrete Piers for South Approach of Ohio River Crossing, Looking South. Dravo Contracting Co., Section One

J. W. Goodwin is superintendent in charge, Allen Stepp is operating the shovel and F. B. Boxley is in charge of operations on the fill. Their address is Sciotoville, Ohio.

The Ohio River Crossing. Dravo Contracting Co.

The concrete work for the Ohio River Crossing was awarded to the Dravo Contracting Company of Pittsburgh, Pa. This consists of 25 concrete piers,

Sinking Caison on South Bank of Ohio River. Note Clam-Shell Bucket and Pump in Action. Dravo Contracting Co., Section One

the two longest spans between the piers being 775 feet in length each. Some very interesting methods of construction have been developed. This is particularly in evidence in the caison work at the south edge of the river for the first span pier. The bed rock here is about 28 feet below the present water level at 14-foot stage. The general method of operation is shown well in the accompanying view. The caison is bell-shaped with three holes communicating with the interior hollow space. A Hayward clam-shell bucket was used to excavate through these holes as water was pumped out. As the material was removed the caison sunk by its own weight. Sufficient space was provided beneath the caison to permit the cleaning of the bed rock by hand before the hollow space was filled with concrete. The middle pier in the river is in shallow water. This has been constructed by means of a cofferdam.

Work was started in November 1914 and completed about October 1st. The McClintock-Marshall Company will do the steel work which probably will be started in the spring of 1916.

Langhorne, Langhorne Co. & Sneed

Starting at the north approach to the Ohio River crossing, Langhorne, Langhorne Co. & Sneed of Charlottesville, Va. have a sub-contract under Rinehart and Dennis. This consists of two side-hill cuts one 95 feet deep and the other 100 feet deep, the material running about 85% solid rock. Although their section is only 7,500 feet long, the yardage is about 360,000 cubic yards. This is being used for fills, but it is probable that a borrow pit may have to be opened up in order to obtain the requisite amount for this purpose.

Their equipment consists of an 80-C Bucyrus shovel and a model-61 Marion, one used on each cut, the former moving most of the material, 16-yard K. & J. air-dump cars, a Jordan spreader and one 72-ton and two 55-ton Pittsburgh & Lake Erie locomotives. During the month of July they moved 69,000 cubic yards with the two shovels.. The 80-C is operated by Tom Staples as engineer and John Garrett as cranesman, the model-61 by Harry Mitchell and Fred Sneed on night shifts, and George McGilfrey, master mechanic, has been operating days temporarily. The job is under the watchful eye of N. K. Sneed, Sciotoville, Ohio. The contract is about 85% complete at the present time.

N. C. Liggen

Immediately north of this work, N. C. Liggen has a subcontract under Rinehart & Dennis for a 1,500-foot concrete viaduct over the Scioto River which will be finished the first of the year.

Perkins Construction Company

The next cut is handled by the Perkins Construction Company of Charlottesville, Va. also a subcontract under Rinehart & Dennis. This is a deep rock cut 125 feet high and 700 feet long consisting of 25,000 cubic yards which is being worked by hand for a fill near by. This work will also be finished by about the first of the year.

Rinehart & Dennis

The adjoining 13,000 feet from the Little Scioto River to Dan White Hollow, miles 84, 85 and 86, is being handled by Rinehart & Dennis themselves. The work is heavy, consisting of four rock cuts, containing 450,000 cubic yards. Operation at first was made difficult by abrupt hills necessitating thorough-cut work in solid rock. Work is finished on two of the four cuts. On the first few lifts of each it was necessary to employ a switchback

A Fill on Langhorne, Langhorne Co. & Sneed's Contract, Section Two

for the dump trains. These switchbacks are being eliminated as the cuts come down.

The equipment consists of two 70-ton Bucyrus shovels, 4-yard Kilbourne & Jacobs narrow-gage cars pulled by four 20-ton Vulcan and two 20-ton latest model Porter locomotives, three 10-car trains are used to each shovel.

The Shovel Has Been Moved Across Trestle and is Starting in on the Cut Described on this Page.
See Top View Page 59.

During July, 50,000 cubic yards were handled running double shift with one shovel for a full month and cutting in the second shovel about the middle of the month. They have about 100,000 cubic yards more to move.

The day crews are Henry Holley and J. C. Troublefield, engineers, and Charles Vanness and Harry Faulconer, cranesmen. The night crews are Grover Voit and Morris Manning, engineers, and R. H. Moore and Joseph Manning, cranesman. W. H. Faulconer is superintendent in charge. Their field headquarters are near Sciotoville, Ohio.

Curtis & Ward

Curtis & Ward of Chicago are doing concrete work in this section, consisting of one viaduct 400 feet long and six small arches which will be completed in the spring.

W. H. H. Allen Construction Company

The W. H. H. Allen Construction Company of Washington, D. C. have stations 570-610, 3,500 feet long, just north of Rinehart & Dennis on mile 83. This is also a sub-contract under Rinehart & Dennis. The work starts at Dan White Hollow and contains about 600,000 yards, 70% rock. They are using two Marion model-41 steam shovels, four 9 by 14 and three 10 by 16 locomotives. W. H. H. Allen, Jr. and B. B. Allen are in charge. The work is 30% completed.

Hunt-Forbes Construction Company

Stations 610 to 660 in Residency No. 1, and Stations 660 to 717 in Residency No. 2, Sections 2 all being handled by the Hunt-Forbes Construction Company of Huntington, W. Va. That portion in Residency No. 1 is sublet from Rinehart & Dennis and that in Residency No. 2 from Winston and Company. This contract comprises 500,000 cubic yards, mostly rock excavation.

Their shovel equipment consists of one 55-ton and one 70-C Bucyrus. The top view on page 54 shows the 55ton finishing the first cut. This cut was made in lifts and the material disposed in a fill just to the south. Between this cut and the next is a ravine crossed by a trestle. The second hill called for a cut 30 feet high and about 200 feet long which on account of the trestle and the lay of the land, could not be made in lifts but had to be taken in one cut from the trestle grade. Consequently a narrow straight cut was made by hand through this hill in order to get cars through. The view on this page shows the shovel starting this second cut just after having crossed the trestle. They are using 4-yard Kilbourne and Jacobs dump cars. In Residency No. 1, wet material has delayed them considerably. This portion of the work is 35% complete and the rest 55%.

Both Geo. Hunt of Ashland, Ky. and M. J. Forbes of Huntington, W. Va. are on the job. N. Y. Bartley is superintendent. The shovel operators are Mack Stock, Chas. Bibb and W. H. Jacobs, and the cranesman, H. G. Chadwick, J. W. Langford and J. A. Hansbrough.

Winston & Company

Winston & Company of Richmond, Va. have stations 666 to 1179 comprising half to Section 2 and all of Section 3, extending from a short distance south of Harrisonville to Summit Cut. All the excavation has been sublet, Winston & Company retaining for themselves the foundation work, concrete bridges and arches, etc. which work is 30% complete.

C. W. Marshall Construction Co.

C. W. Marshall Construction Company of Kansas City, Mo., are handling 3¾ miles calling for some 300,000 cubic yards of excavation including considerable rock work.

Their equipment consists of a model-60 Marion with 4-yard Western cars and 18-ton Davenport locomotives.

The first view on page 59 shows the shovel in one of the cuts containing 100,000 cubic yards of rock. The shovel here is on one of the first lifts. This cut is carried down 24 feet deeper through rock. All material goes into fills. Three to four hundred 4-yard cars are averaged per 10 hours. These are loaded full to check out 4 yards against the engineer's estimate. After this cut is finished the equipment will be moved two miles cross-country to another big cut.

One of the most interesting features of this contract is the method employed in taking the equipment to the job. The outfit had to be moved from Lucasville on the N. & W. to the work near Harrisonville, a distance of 9.2 miles. One 5-ton White dump-

The Outfit Underway

Moving the Shovel

Carrying the Men to the Job in the White Truck

The Boom etc. en Route

How the 4-yard Dump Cars were Loaded on the Truck

How C. W. Marshall Moved His Outfit to the Work

C. W. Marshall Con. Company's Marion Model-60 Finishing Upper Section on One of the Cuts. This will go 24 feet Deeper Through Rock

body truck and three traction engines were used. Coming out of Lucasville one 15% grade was encountered up-hill, 700 feet long. The shovel was moved under its own power using eight full length 70-pound rails with four bridles to a rail, on 2 by 10 by 18 inch blocks instead of ties, as the contour of the road had to be followed. The boom dipper handle and dipper, etc. were placed on house-moving trucks and drawn by a traction engine. The dinkeys were mounted on house-moving trucks and drawn by two traction engines each. The 6-yard cars were all carried to the work in the 5-ton White truck, one at a time. Three trips were made per day of 10 hours, making a total of over 55 miles per day. The move was made in 13 days and required an average of 18 men, two foremen and two teams.

The service of the White truck on this job is most interesting. Besides the duty above mentioned three trips a day are being made with coal averaging 5.7 tons per load. In addition, it is used for carrying men and supplies to and from the work. Mr. Marshall estimates that it saves them $15.00 per day, replacing eight two-horse wagons on hills. It has not been used for taking the excavated material from the shovel, but there are many places where their use for this purpose would be very economical.

C. W. Marshall is on the job all the time and has personal supervision. F. H. Blodgett is superintendent, and Frank Lewis and Earnest Johnson operate the shovel. The contract is 25% complete.

Jones-Gray Co., Inc.

To the Jones-Gray Company Inc. of Winchester, Ky., Winston & Company sublet all the excavation on Section 3, with a total of between 700,000 and 800,000 cubic yards, mostly earth. The biggest piece of excavation is at Summit Cut, the biggest cut on the line. Summit Cut lies partly in Curtis & Ward's contract in Section 4, but Jones-Gray are handling all of the material that goes south, between 500,000 and 600,000 cubic yards.

Their equipment consists of a Bucyrus 60-C and a Marion model-60, six 45 to 55-ton Baldwin switchers, one spreader, 49 12-yard dump cars, 46 Westerns, 2 Olivers and one Contential. The spreader was built by the Jones-Gray Co. themselves. Besides this they have a 22 H. P. Buffalo Pitts traction engine and truck. Smalling & Peck, their sub-contractors use a Kelly-Springfield auto truck for hauling coal from which they get very satisfactory results.

Heavy digging has just recently been started, considerable time having been expended in bringing the outfit on the job, getting the track layout, placing the trestles and making some creek changes. The contract is 24% complete.

A glance at the map will show that the southern part of this contract overlaps Marshall's contract. This may be explained by the fact that the same material is used for a fill between stations 865 and 870 on Section 2.

Here again we find an interesting example of moving an outfit cross-country. The whole outfit was taken from Given on the Detroit, Toledo and Ironton Ry. to the job, a distance of 7.2 miles. Four locomotives, two steam shovels, one spreader, three 12-yard dump cars loaded with blacksmith and machine shop supplies travelled in one train all chained together. The shovels were placed on each end of the train facing out, the locomotives in the middle. Wire rope on the shovel drums was used to help the train up hill or to ease it down. On heavy grades both shovels helped with lines as well

Jones-Gray's 60-C Bucyrus Pulling Dinkey to Work at South End of Summit Cut, Section Three

as with their propelling gear. The locomotives were also under steam. The track was carried on 3-inch plank laid crosswise with the rails bridled together. Teams were used to handle the rail and plank. Where possible, bridges were reinforced, where this was not practicable they cribbed up and crossed alongside the bridge. The trip was made in 17 days. All the 12-yard dump cars, except the three above mentioned were carried in a truck hauled by a 22 H. P. Buffalo-Pitts traction engine.

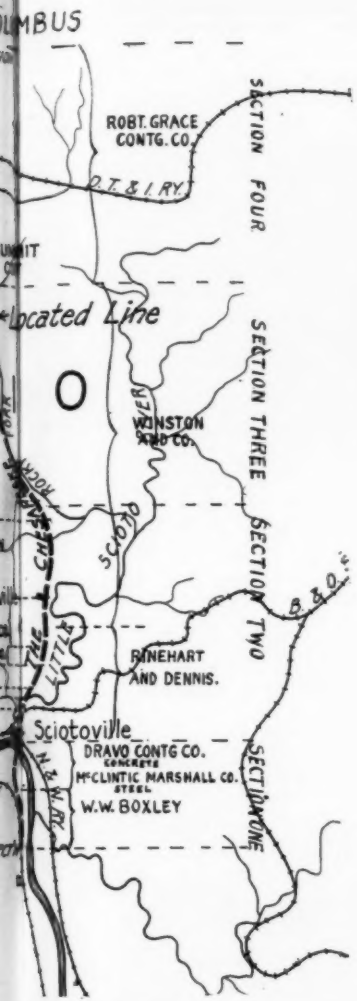
Langhorne, Langhorne Co. & Sneed's 70-C Bucyrus in Rock near Sciotoville

Rinehart & Dennis' 70-ton Bucyrus on Section Two

C. & O. N. Ry. Showing Sectional Divisions

Condensed Profi

CONSTRUCTION OF THE CHESAPEAK



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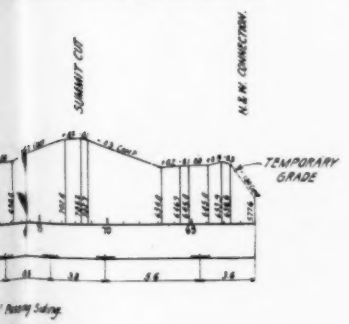


...Passing Siding.
...ndened Profile

...HESAPEAKE & OHIO NORTHERN RY.

Hunt-Forbes' Bucyrus in Action on Section Two

Geo. Maxfield's 18-B Bucyrus Revolving Shovel, Showing Caterpillars

Both E. M. Jones and J. F. Gray are on the work continuously.

The 60-C Bucyrus is operated by Leonard White and craned by Henry Jones, the model-60 Marion by Robert Black and Mart Cole. Najah Taylor is general foreman. The field address of this company is R. F. D. Lucasville, Ohio.

One of Robert Grace's Cuts, Marion 60 at Work, Section Four

Robert Grace Contracting Company

Robert Grace Contracting Company of Cleveland have the general contract for all of Section 4, and are subletting a portion to Curtis & Ward, L. O. McLean and Geo. Maxfield. This section starts with the north half of Summit Cut and runs to the connection with the Norfolk & Western near Waverly. The excavation totals 939,800 cubic yards.

The excavation on the north end of Summit Cut is sublet to Curtis & Ward of Bluefield, W. Va., who are renting one of Grace's Marion model-60 shovels for the purpose. This cut contains 256,000 cubic yards. The contract is 12% complete.

L. O. McLean of Pittsburgh has a sub-contract north of Summit Cut consisting of two cuts containing 10,000 and 15,000 cubic yards each and road changes with a small cut calling for 13,000 yards. This work they are doing with a small revolving shovel. The contract is 58% complete.

Geo. Maxfield's sub-contract on the north end of the line will be described later in a little more detail.

Robert Grace Contracting Co., are doing the rest of the work on Section 4 with their own equipment. This work consists of seven cuts aggregating 619,000 cubic yards. Two model-60 and one model-70 Marion shovels have been used, operated by Frank Fleming, W. L. Jones and G. D. Walrath, with E. B. Evans, E. J. Reeves and A. K. Brewer, as their cranesmen, respectively. The contract is 40% complete.

All concrete work, about 16,000 cubic yards, is being handled by C. B. Moon of Cleveland.

Porter locomotives are used exclusively on this work and Western 4-yard dump cars. They are also using one 5-ton Pierce-Arrow truck which is giving excellent service.

Paul Krager is superintendent in charge of the work and A. S. Hecker general manager of the company at Pittsburgh.

George Maxfield

As stated, George Maxfield, of Toledo is doing 26,800 cubic yards divided into three cuts. In addition to this he has 15,000 cubic yards of county road changes made necessary by the new line. The road change work was illustrated and described in our September number on pages 450 and 451. The interesting feature of this work is the use of a revolving shovel mounted on caterpillars, one of the first cases recorded on this type of work. This method of mounting was adopted because of the large number of shallow cuts encountered and the consequent necessity of frequent and otherwise slow and costly moves.

The shovel used is a Bucyrus 18-B with a ⅞-yard dipper. It is illustrated in our center page group. Frequent rains have given the shovel a severe test. Despite the fact that at times it has been impossible to pull dump wagons over the roads, the shovel has employed idle moments travelling up and down the muddy cut for the edification of interested visitors. George Maxfield is in personal charge of the work at R 4, Waverly, Ohio. Dan Leo Long is operating the shovel. At the present time this contract is 44% complete.

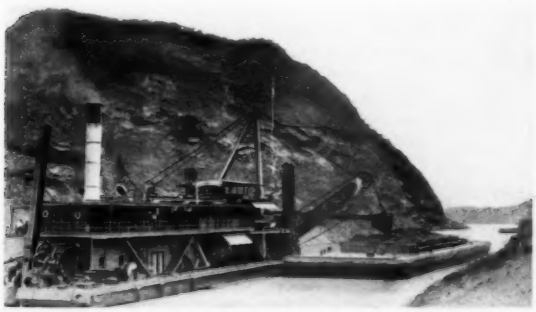
Track Troubles on Robert Grace's Work. The Material Contains Water, Sand and Results After Rains in Track Settling Under Load as Shown

M. J. Caples, vice-president of the Hocking Valley Ry. is in general charge of the work, with headquarters at Columbus, and W. Michel is engineer in charge. The work is divided into three residenceys; Residency No. 1 covering Section No. 1 and No. 2, has its headquarters at Sciotoville, Ohio with H. B. Walters as resident engineer and J. D. French his assistant and general utility man. Residency No. 2 is under W. L. Roller with headquarters at Harrisonville. This residency covers Section 3. Residency No. 3 covers Section 4 with headquarters at Waverly. J. W. Holman is resident engineer.

The Slide Situation on the Isthmus

Extraordinary conditions have resulted in the 15-yard dipper dredge Paraiso digging 17,185 cubic yards of heavy material in 24 hours.

FURTHER movements of the slides on the east and west banks of the Canal at Culebra have resulted in closing the canal to traffic indefinitely. The first suspension of traffic occured from August 7th to August 10th. Further movements resulted in another suspension of traffic between September 6th and 9th inclusive. On the 10th, the canal was sufficiently cleared to allow the passage of light draft vessels and on the 13th, the channel has had been made wide enough for larger vessels. From this date until September 18th, traffic was normal, but a new slide on the 18th and 19th resulted in the complete suspension above noted.



Bucyrus 15-Yard Dipper Dredge Gamboa at Work on the Slides. This Dredge has Handled 15,145 Cubic Yards in 24 Hours.

After the elimination of the immediate danger at the base of Cucuracha slide, the larger dredges were stationed at the bases of the east and west Culebra slides which were slowly moving towards each other. For a while the dredges were able to keep pace with the enroachment. The section of channel affected at this time by the two Culebra slides was 2,800 feet. The east slide was direcly north of Gold Hill and the west, north of Contractors Hill, the latter being considerably the greater. Five dredges were kept to their highest capacity for 24 hours per day. As stated above, the new slide at Culebra occured on September 18th and 19th, 10,000,000 cubic yards of material being in motion, covering 175 acres mostly on the east side. Directly after this occurance, the ladder dredges, Marmot and No. 5 were brought up from the Atlantic and Pacific entrances respectively to clear a channel through the shallow water in order to allow the large dipper dredges access to the worst part of the slide where the material has been shoved up from the bottom forming an island. These two dredges completed their work about September 24th and were withdrawn to make room for the dredges of greater capacity. Five dipper dredges and two hydraulic dredges were put into action, the latter cleaning up the silt and lighter material back of the dipper dredges.

The dredges are being worked at their highest capacity and some very remarkable records have been made. According to the Canal Record of September 29th, the Bucyrus 15-yard dipper dredge, Gamboa, at the time equipped with a 10 cubic yard dipper, excavated in the 24 hours ending September 23rd, 15,145 cubic yards. This output means an average of 5,048 cubic yards in 8 hours or 631 cubic yards per hour. The dredge was delayed about twenty minutes during the 24 hours, waiting for barges. During the 24 hours ending September 27th, the Bucyrus 15-yard dipper dredge Paraiso, dug 14,650 cubic yards. The Canal Record of September 29th states that this is regarded as a finer performance than the Gamboa's output, for the reason that the former dredge was subject to many delays owing to the fact that it had to wait frequently for barges. This same dredge in the 24 hours ending October 5 turned out 17,185 cubic yards, an average of 5,728⅓ cubic yards per 8-hour shift or 716 cubic yards per hour. This is the highest record that has yet been made upon the Isthmus in hard material. The Canal Record for October 6 states that the difference between this and the Gamboa's record is equal to a good day's work for one of the 5-yard dipper dredges. During the month of September, the Gamboa averaged 9,412 cubic yards per 24 hour shift or 461.3 cubic yards per working hour, allowing for delays. On September 28th this dredge averaged during the 24 hours, 652.8 cubic yards per hour.

The Canal Record of September 15th states that the Bucyrus dredges, Gamboa and Paraiso, are doing, roughly speaking, slightly over half the excavation on the Culebra slides. A third Bucyrus dredge, the Cascadas, similar in design to the Gamboa and Paraiso and of equal capacity, will soon be added to the fleet, as it is now on its way to the Isthmus. The addition of this dredge, according to the Canal Record, will increase the dredging capacity at the base of the slides by 25%.

The Excavating Engineer

A Monthly Publication Devoted to Excavating *and* Allied Subjects

Subscriptions, payable in advance, $1.00 a year for 12 numbers, 50 cents for six months.

To foreign countries, including postage, $1.00 or its equivalent, 4 shillings; 4 marks; or 5 francs.

Notice to discontinue should be written to the Milwaukee Office in every instance.

Advertising copy should reach Milwaukee Office by 10th of month before date of issue.

Address all communications to the company.

THE EXCAVATING ENGINEER PUBLISHING CO.

Bradlee Van Brunt, Manager and Editor

367 National Avenue Milwaukee, Wis., U. S.

Construction Outlook

The steady improvement in business conditions is still very evident. A healthy sentiment of confidence seems to be growing all over the country. Bank clearings are improving. Railroad buying is encouraging. Export sales continue to be remarkably active. The government crop report for October indicates that we will have the largest wheat crop in the history of the country with record crops for other agricultural products. Another encouraging sign is the fact that notwithstanding the violent reaction in the industrial field, the railroad securities have displayed remarkable strength. It is rather late in the year to expect large developments in the construction field. Consequently, we hear of practically no railroad work of any size to be let. However, a glance through our prospective construction columns will indicate an unusually large number of rumors which is natural for this time of the year, but none the less encouraging. Road construction is still active but begins to show the coming of the winter season. Indications seem to point to the fact that drainage and irrigation work will be very active throughout the Fall, as there are a large number of big jobs in prospect and a fair number ready for the letting.

Bucyrus Company Opens Los Angeles Office

The Bucyrus Company has recently opened an office at 900 Hibernian Bldg., Los Angeles, California. This office will be in charge of Mr. G. H. Hutchinson who has been long known among the contractors in this district.

Organizing the Engineers to Aid the Army

To anyone who has followed the course of the present European struggle, it is selfevident that the engineering corps of the army is one of its most important branches. It is also self evident to anyone who has taken the trouble to study the present organization of our army, that in case of trouble, the government will be obliged to call upon civilian engineers of the country to assist and supplement the work of the regular army corps. It is encouraging to note that the various engineering societies of the country have formally offered their services to Secretary Garrison, and a definite plan is now being worked out at the Army War College in connection with the general reorganization. A detailed report on this scheme will probably be included in the Secretary's report to Congress this winter. We recommend that engineers and contractors the country over, watch for this report with a view of determining how each individual can best do his part towards furthering the plans that are now being framed for the security of the nation.

Analysis of Railway Returns for the Fiscal Year

Some interesting conclusions may be drawn from a study of the Interstate Commerce Commission compilation of the official railway returns for the fiscal year recently reported. These returns reduced to a mileage basis, indicate that the class 1 roads, those earning $1,000,000 gross or more, show a decrease in total revenues of 6.3 %, a decrease in operating expenses of 9.3% and an increase in net operating revenue of 1.8%. This showing of course, may be credited to the drastic economies to which the railroads have been driven. A further study, however, reveals the fact that nearly half of this total reduction in expense was effected in the maintenance accounts, indicating, doubtless, a postponement of needed expenditures. The increase in net operating revenue, moreover, is entirely attributable to the more favorable showing of the eastern roads, due partly to the advance in freight rates which came into effect during the year. The western and southern lines, despite a reduction in operating expenses, show decreases in both total and net operating revenues.

· FIELD NOTES ·

QUESTIONS pertaining to the operation, maintenance or repair of excavating machinery will be answered through this column. Address, Field Note Department, Excavating Engineer, P. O. Box 607, Milwaukee, Wisconsin.

An Easy Way to Handle Hoisting Chains when Setting Up Heavy Shovels

Awarded 1st Prize in Prize Competition

Contributed by V. A. Loomis, steam shovel engineer, C. B. & Q. Railway, Casper, Wyo.

The following directions have proved a complete success in handling the hoisting chain on a heavy shovel when raising or lowering the boom. It is commonly known that by hand labor alone, the handling of the joisting chain is an extremely difficult and slow job.

No. 1. Reeving Chain for Hoisting Boom

Use 90 feet of 1¼ inch cable to handle hoisting chain. This line should be reeved from the boom in the same manner in which you desire to have the chain in order to raise the boom. (*Editorial Note*:—In ordinary practice, this method of reeving is from the drum under the sheave beneath the circle, over the idler sheave at the head of the A-frame, under and over the lower sheave at the point of the boom and from thence to the A-frame head). One end of cable should be tied to the end link of the hoisting chain which is now wrapped on the drum and the other end of the line to the hoisting drum. Two wraps should be taken around the drum in the opposite direction to the chain. These wraps should be well over toward the brake band side of the drum so that when the chain unwraps, it will not interfere with the line wrapping up. Unwrapping the chain with the engines will then leave the chain in exactly the position desired. One man can hold the line to the drum with ease.

No. 2. Reeving Chain for Lifting Dipper Handles

After the boom is up and made fast and the chain is on the drum again, the next step is to reeve the chain out in order to pick up the dipper handles. (*Editorial Note*—This is generally done by reeving the chain from the drum under the sheave under the circle, over the sheave at the foot of the boom, and over the second sheave at the point of the boom). Reeve out the cable in the same manner as you desire the chain to go, attach one end of the line to the end link of the chain and the other end to some object directly in front of the shovel. Release brake and friction bands on the drum and back the shovel up until you have a sufficient length of chain to make the hitch on the dipper handle.

No. 3. The Saddle Block

This should be done while the boom is down. Swing the saddle block high enough so that a short bar can be placed under it ahead of the shipper shaft bearings. This bar should clear the gears and rest on the boom. When the dipper handle is lifted the ends will catch the slide plate and raise it easily into place.

No. 4. Reeving Chain Through Padlock

To reeve chain through the padlock, operate in practically the same manner as described in No. 2.

No. 5. Lowering Boom

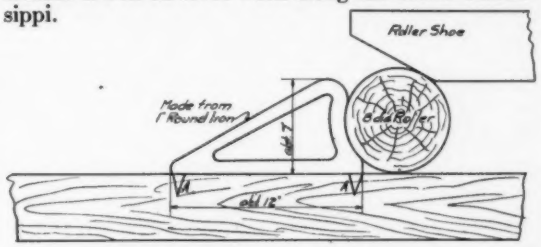
To reeve the chain in order to lower the boom, operate in practically the same manner as described under No. 1.

Application of Roller Dog

Awarded 2nd Prize in Prize Competition

Contributed by J. S. Whitley, Supt., Don B. Hearin & Son, St. Patricks, Louisiana

In dragline work where the tracking is bad or where the rollers and roller platforms are wet and muddy, it seems almost impossible at times to make the rollers catch under the skids or roller shoes. It often happens also that the skid, owing to a poor roller, will settle down lower than the diameter of the next roller. A very successful method of holding the rollers is being practiced by Don B. Hearin & Son on levee work along the lower Mississippi.



A pair of dogs made of one inch round iron are used. The sketch herewith will serve as a description. They can be easily made by any blacksmith. It will be noticed that this roller is about seven inches in height and each bottom end has a spike or a sharp pointed lug (see A in the sketch). By means of these spikes, these dogs are driven into the section timber at each end of the roller. This very successfully holds the roller in place until the machine has moved ahead far enough for the roller to get well under the shoe. The dogs are then removed. A pair of these are sufficient for any dragline excavator. They are quickly used, cheap, and very effective.

SHOTS FROM THE · FIRING LINE ·

Alabama

Selma—Contract for constructing 19 miles of good roads from Gastonburg to Clarke County line has been awarded to the Central Alabama Construction Co., Eufaula, Alabama, at $70,000.

Arizona

Yuma—L. M. Lawson, formerly project manager of the Rio Grande Irrigation Project of the U. S. Reclamation Service, has been transferred to the same position on the Yuma project at Yuma, Arizona.

Arkansas

Corning—Bids have been received here for excavating 52.75 miles of dredge ditches containing about 1,560,000 cubic yards, and for constructing 4.25 miles of levee containing about 116,500 cubic yards of embankment.

California

San Francisco—Samuel Murray, formerly bridge engineer of the Oregon-Washington Railroad & Navigation Company, has recently been appointed chief engineer of that company, succeeding J. R. Holman, who recently retired on account of ill health.

News from Los Angeles and Vicinity

By G. H. Hutchinson

C. R. Butterfield has his 18-B at work on a 20,000-yard contract at San Pedro, California excavating for a large school building; is making fine progress and expects to land another good sized job adjoining his present one. John Dupra, shovel runner, is loading about 400 1½-yard wagons in 8 hours on some street excavating close to Butterfield's job. Fairchild, Gilmore & Wilton have a Fairbanks gasoline ⅝-yard machine at work in the same kind of material. The ground ahead of the gasoline was all being shot, no shooting being done ahead of the Bucyrus. The gasoline shovel is loading 200 1½-yard wagons in 8 hours.

J. B. Keller is running a Marion-36 on a sewer job for James Kennedy at Sacramento.

Carl Gabler, shovel engineer,has gone to the Pittsburg Kansas coal field and has landed a job assisting in the erection of a model-250 Marion.

Billy Gallagher has been at Santa Rita, New Mexico running a shovel for the Chino Copper Company for the past year. Bill writes he likes the place and states that he has gone into the chicken and skunk raising. We don't imagine he keeps them all in one coup; if he does there would be nothing but feathers in the pie he has promised us on our next visit. Bill learned considerable about chickens before he left here. It may interest our readers to know that we have a chicken ranch located at the corner of 3rd and Spring. We are willing to let our customers look them over once. Why are old sports like grass hoppers? The chickens get em both.

An old fisherman at Redondo was dickering with some people about fish; the price was too high. After they left, he commented thusly. "Those people came out here two months ago with a five dollar bill and a suit of clothes and haven't changed either of them since."

Jim Maxey was in town last week and we heard he had a $2,000 check in his pocket, and what do you know, he took it with him when he left. It seems to be our luck. We are not always in the right place at the right time.

Bids were opened in Riverside October 20th, for nine miles of highway, all heavy work, about 225,000 yards. Haven't heard who was low bidder yet.

Tom Gannon, manager for Sharp & Fellows, has gone to San Francisco to do the fair. It will be interesting to hear him tell about it when he comes back. We would like to tell a few of Tom's stories, but are afraid of the official censor. The next time you see him, ask him about the fellow that liked to keep his eye on his pocket book.

My meal ticket expires at seven P. M.—it is now 6:49 P. M. nuff sed.

San Francisco and Vicinity

By E. C. Hingston

Pete Smith is operating a 70-C Bucyrus shovel for the Daniels Construction Co. at McNears Point. There are two 70-Cs and a 65-ton Bucyrus shovel on the job loading rock in barges for the Key Route fill.

The Board of Public Works of San Francisco will receive bids until November 10 for the construction of 67-mile railroad from Rosasco to Hetch-Hetchy Valley.

Engels Copper Co. is reported to have preliminary surveys under way for a narrow-gauge railroad from its mine down to Indian Valley and Indian Creek canyon to connect with Western Pacific Railway at or below Keddie.

Canada

Montreal and Vicinity

By B. St. John

L. A. Ott & Company has completed the McGill Stadium work, and it is a very creditable job. The opening of the Stadium was very successful, the Governor-General and Staff being present.

Cook Construction Company, Limited, are making good progress on their Montreal Aqueduct job. Mr. McLean of the above company states that they are doing well on the Ocean Terminal contract at Halifax.

Laurin & Leitch are finishing their Park Avenue subway contract and it is the best piece of work of its kind we have seen in Canada. They are also finishing up the reservoir which they have been working on for several years, and I would advise people interested in this class of work to visit same when the opportunity occurs.

The City of Montreal is rushing street improvements in order to have same in shape for winter. This work has been long delayed on account of lack of funds and litigation.

On account of the large number of Italians leaving here to join the colours, contractors are having considerable trouble in securing suitable laborers.

There is also a big demand for machinists on account of the large number going to the front and also on account of the war munition factories being very busy.

UMI

H. G. Puffer has completed the repairs to John Quinlan's shovel and has left here for his home at Milan, Indiana.

News from Winnipeg

By J. A. Coyle

Sir William Mackenzie and party, consisting of senators and members of Parliament passed through on the first train over Canadian Northern Lines to Vancouver. A regular service will now be operated on their transcontinental line.

Winnipeg Construction Company have placed order for one class-20 and one class-24 Bucyrus dragline excavator for work on their contract for Winnipeg Greater Water District. This company will now have operating eight Bucyrus draglines on this contract.

M. Jance of Jance Brothers, Boomer & Hughes, is negotiating with City of Winnipeg regarding construction of gas pipe line to supply the city.

T. R. Edwards of the Western Canadian Construction Company has 50 miles of prairie work for Canadian Northern Railway. Good progress has been made, though considerable delay was caused by rain.

Thomas Kelly & Sons, who have a contract on the Greater Winnipeg Water District, state they will have 18 per cent of contract completed this year, and expects to have 50 per cent by end of 1916. R. Worthington is superintendent.

J. D. McArthur who controls the Edmonton, Dungavan & British Columbia Railway, advises that grading and track laying is practically completed on his line.

Vancouver and Vicinity

By A. G. Brown

The end of steel on the Alberta and Great Waterways Railway is now 140 miles from Edmonton, or a little over one-third of the way to Fort McMurray.

Plans for the bulkheads in connection with the False Creek reclamation scheme by which it is proposed to provide warehouse and wharf space in False Creek beneath the Granville street bridge, have been filed with the civic building inspector. The estimated cost of the work for which a permit will be issued is $50,000. Piles, it is understood, are now on the spot ready for driving, and this work will commence at once. The work is being done under the direction of the board of harbor commissioners.

While the Canadian Northern Railway have made arrangements to use for the present the depot of the Great Northern Railway Co., it is likely that work will be commenced shortly on the construction of its own terminals in Vancouver.

The C. N. R. have commenced operations on the laying of steel on its southeast branch from Camrose, the grade of which has been completed for about two years. It is the intention to finish the road as far as Battle River, some 60 miles distant.

Construction on the Hope-Coquahalla section of the Kettle Valley Railway will be completed by the middle of November, including snow sheds. Under the terms of a joint agreement between the C. P. R. and the Great Northern, this branch will be used by the latter also. At Hope, the G. N. R. will link with the Canadian Northern Pacific Railway and run over its line into Vancouver.

Considerable progress has been made on harbor development at New Westminster, B. C. this season. It consisted chiefly of filling and reclamation. A new wharf extending 192 feet out from the old water line has been completed, and industrial tracks laid.

A contract for $72,000 was awarded to Cotton & Co., to bring a water system into West Vancouver.

Plans have been completed for the new G. N. R. station at Vancouver. The plans have been forwarded to the company's offices at St. Paul, and a local office has already been opened here.

The British Columbia Government has decided to extend financial assistance to the French Complex Ore Reduction Co. for the erection of a demonstration plant at Nelson, B. C.

Canadian Northern Railway has awarded a contract to J. D. McArthur, Winnipeg, for grading on its line from Edmonton northeast to St. Paul de Metis. The contract covers about 100 miles of grade.

The death occurred in Vancouver on September 14th of Mr. H. H. Abbott at the age of 83. The deceased was the first general superintendent of the Vancouver division of the Canadian Pacific Railway.

Colorado

Denver and Vicinity

By H. N. Steinbarger

Within a few weeks a new highway from Pagosa Springs to South Fork will be completed. At present the road is passable for automobiles, although still in an unfinished state. This new thoroughfare will make an automobile route to southwestern Colorado, which has been practically inaccessible to motorists from other portions of the state. This new thoroughfare is a triumph of road building, in that it is blasted out of solid rock to form the pass, and so difficult to construct along what is known as the Wolfe Creek that the cost per mile in some cases reached $5,000.00. There are no steep grades, although the road crosses the continental divide at Wolfe Creek pass, which is 10,000 feet above sea level. At some points along Wolfe Creek there are places where the road is more than 2,000 feet above the stream. In locating this highway the engineers did not follow the old wagon road which fords the Rio Grande-Del Norte at a number of places; the new survey entirely eliminates *these* fords. This road connects with the main roads through Archuleta, La Plata and Montezuma Counties, Colorado, and gives access to Mesa Verde National Park, which is the home of ancient cliff dwellers. Mesa Verde Park has been known as a park for several years, but only recently many new discoveries of cliff dwellings have been made. Only about 700 persons visited this park during the past year, but with the new road it is estimated that many thousands will make the trip.

A proposed road from Durango to Silverton, Colorado, will be completed in the near future, and will be connected by the new Pagosa Springs road and with still another the Dolores-Norwood road. Will make a circle trip, going through a country that is unsurpassed in beauty by anything in the world.

Thomas J. Tynam, warden of the Colorado State Penitentiary is a real "dyed in the wool" good roads enthusiast. He has always been enthusiastic, but the success he has enjoyed in working state prisoners on the roads of Colorado, has made him a real booster.

Recently a new prisoners road construction camp was established on the Cache La Poudre River in Larimer County. Approximately 40 men are in the camp at this time, and when the work is well under way this fall this force will probably be doubled.

Capt. Chas. H. Baldwin, a man who has been building roads for many years, is in charge of the Ft. Collins, Colorado camp, and the success of the work under his supervision has been remarkable. Recently he had full charge of the Cotopaxi-Parkdale cut off, which is now completed.

A splendid record was made on the Rainbow Route highway. A camp was set up in December, 1913. Approximately 50 prisoners were at first employed, later being increased to 75. An average of about 60 men were constantly on the job. The work was in charge of Capt. Baldwin and two citizen overseers. It involved the removal of a large rock barrier, which stood in the way of completion of the South Transcontinental Highway, which as stated, is known as the Rainbow Route. The cut off in length was 22 miles, 14 miles of it being blasted out of solid rock. Had it not have been for this prison labor the cost to the various counties in that territory would have been too great to consider.

The camp was governed in a very unique manner by the prisoners themselves. Of course they were in charge of the State officers, but their own personal affairs and camp government was controlled by themselves. They elected the full list of governing officers, just as any town or city, having their own police courts, etc. In this manner they kept themselves pretty well under control and maintained strict discipline. They were encamped on this job about 20 months.

We understand there is much mourning in the Town of Guernsey, Wyoming, since the deparature of Charlie Campbell, and we understand that the telephone girls in the Guernsey Central exchange are not nearly so busy. If you want to know all about this ask Charlie Dooling. It's quite an interesting story.

The handiest man we know of around camp or anywhere else in this section of the country is Charlie Dooling. You can put him at anything and he will make a go of it. We understand that for quite a long period he made himself so handy about the Guernsey Hotel that they gave him full charge of the dining room. We don't know whether he wore a long apron or not, but we wager that he could put one on and pass the dishes around about as well as any maid in the business.

By the way, all this stuff about Charlie burning up the roads from the camp to Guernsey has been proven to be all wrong, that is, to be more exact, after Dude Brennan arrived at Guernsey. We don't mean to say that the roads from the Dooling camp to Guernsey were not well traveled, for after Brennan arrived they were just as busy, but his mode of travel and general demeanor in town is perhaps a little more dignified. Moving slowly and with more force is the way to express it, for it certainly won the day and the lady in question, and up to the time the Dooling work was completed he had the situation well in hand.

Dooling Brothers, Hamilton & Gleason, and Sprague & Nisely have all completed their work on the Guernsey-Wendover cut-off of the Burlington Railroad. Young & Crook and Gibbons Brothers tunnel jobs are approximately 90 per cent completed. It is expected that they will pull off the work by the time this paper goes to press.

Winston Brothers Construction Company of Minneapolis, also Fred M. Crane Co. of Omaha, each secured a part of the Ft. Laramie Unit of the North Platte project, U. S. Reclamation Service, and are establishing their camps and getting the work well started. Much headway must be made during the fall period in order to complete this job on schedule time, on account of the specifications forbidding handling of any material when frozen. We are quite sure in the hands of these contractors the work will be completed as required.

Crook & Hoffman recently placed ten teams at work on a contract on the Moffat road. This work is well under way and nearing completion. They also shipped 20 teams down in Kansas on a sub-contract under Kilpatrick Brothers near Lawrenceburg, Kansas. The work is on the Union Pacific Railroad, Junction City branch. It is mostly work of repairing washouts. The Kilpatricks also have similar work on the Colby-Plainville branch of the Union Pacific.

On this same work Allen & Lafferty of Denver are using 35 teams. L. A. Johnson also of Denver is working 30 teams and Harry Sprague is rebuilding the Leavenworth, Kansas & Western Railroad branch of the Union Pacific from Leavenworth west. This work has been under way for a number of months.

F. R. Keister who has made his home in Salt Lake for several years, recently stopped off in Denver for a couple of days on his way to Kansas City and the east, to renew old acquaintances, and look over the town. It was his first visit to Denver and vicinity in fifteen years and the great changes he saw were quite interesting. Keister has just finished operating a shovel for the Rio Grande Southern branch of the Denver & Rio Grande Railroad. He put in several months on an old time Bucyrus shovel in handling ballast and other material. He is on his way to Pittsburg, Kansas coal fields, Kansas City, and Wooster, Ohio. which is his old home town. After resting up a little while he expects to locate in some eastern section, or in the Pittsburg, Kansas, field. Here's wishing him the success in the east that he has enjoyed for a number of years in the western territory.

Charlie Campbell recently spent a few days in Denver on a pleasure trip, after completing his work with Dooling Brothers at Guernsey, Wyoming. Charlie was rather busy while in Denver and as usual didn't neglect to look up his acquaintances of the opposite sex. He had several "business engagements" in the evening, and was seen several times performing his duties. Charlie went on to Omaha, also Beatrice, Nebraska, thence to his home at Imperial, Nebraska where he expects to remain for a short time.

G. W. Hamilton has been bobbing in and out of Denver, always in his big new seven passenger machine. He is enjoying it to the fullest extent, except that he hasn't as yet taken full charge of the car and operate it himself, due to the fact that his foot was crushed by a heavy boulder several months ago and is not quite strong enough to handle such a high powered motor. He expects soon to have some work lined up, and as he really only enjoys himself when he is busy we certainly hope he will succeed.

Charlie Dooling promised faithfully to visit Denver when the Guernsey, Wyoming, work closed down. As usual, however, he set the prairie on fire, getting to the depot and hiking for Kansas City. Charlie knew what was in store for him if he came to Denver, so he was very wise to pursue his usual course of slipping on by without stopping. In fact he never even hesitates when he gets near Denver. He has been making all sorts of threats lately as to what he is going to do to one of the correspondents for this journal. In fact he has threatened to join the editorial staff of the Excavating Engineer and write some real news. Here's hoping that he starts something, for if he does there will be some interesting reading in these columns.

Florida

Badentown—J. C. Gardener has been appointed chief engineer of the East & West Coast Railway with headquarters here.

Palmetto—Edgar Chapman, Plant City, Florida, has been awarded contract, at $113,000, for the construction of the Gamble Creek drain. The work calls for 23 miles of ditches requiring 1,340,000 cubic yards of excavation. Chas. S. Hill is chief engineer.

Georgia

Macon—W. E. Dunwody, president of the Standard Brick Company, is now president of the Georgia Brick Manufacturers' Association.

Illinois

Chicago—Frederick E. Morrow, formerly principal assistant engineer of the Chicago & Western Indiana Railroad and the Belt Railway Company of Chicago, has been appointed assistant chief engineer of these roads.

Chicago—The Sanitary District of Chicago opened bids on October 21st for Sections 12 and 14 of the Calumet-Sag Channel. This calls for 1,286,000 cubic yards of excavation besides a considerable amount of concrete work, channelling, macadam pavement, steel work, etc. The lowest bidders are A. Guthrie & Co. of St. Paul, and James O. Heyworth of Chicago. At the time of going to press the contract has not been definitely awarded.

Iowa

Sibley—H. B. Whitney, Emmetsburg, Iowa, was awarded contract, at $0.0675 per cubic yard for work for Drainage District No. 2. This calls for a new channel for Ocheyezan River and involves 217,921 cubic yards of excavation; average depth 8 feet; bottom, 6 feet; average top, 22 feet. Bids were opened by county auditor October 4.

Kansas

Pittsburg and Vicinity

By W. S. Russell

Although the weather is not cold as yet it has been moderately cool and the coal business is good, better than usual at this time of the year. The continued wet weather during the past few months has interfered somewhat with coal stripping operations and lessened the production so that now there is a shortage and the coal strippers are hardly able to fill their orders.

We note from trade journals that the coal business is good all over the coal producing states, according to reports from the leading coal companies who anticipate a good demand for fall and winter. This will insure a promising season for the coal stripping firms in the Kansas field and enable them to make some money.

The demand for steam grades is improving owing to the activity of industrial and manufacturing concerns, also to the advance in the price of fuel oil which is compelling users to return to coal. Prices are advancing and no doubt will go higher with colder weather.

We quote prices in the Kansas field as follows:—Lump, per ton $2.25. Nut, per ton $2.00. Mine run, per ton $2.00. Mill run, per ton $1.75. Slack, per ton $1.35 f. o. b. railroad cars at the mines.

The weather now seems to be fairly settled which has put the roads in fair condition and the coal stripping steam shovels are practically all working. The pits that were flooded owing to bad location are pumped out and operations going on as usual.

The Ellsworth-Klaner Company have moved one of their model-270 Marion shovels from their field near Chicopee to a location about a mile south of Minden, Missouri, where they have leased a field of 240 acres near the Frisco railroad. They are putting in a first class coal stripping plant of tipple with shaker screens, loading tracks, power house, engines and boiler. Tram cars with tracks to the pit, dinkey locomotives, pumps, pipe repair shop, etc. The steam shovel is one of the largest in use, having a 90-foot boom with dipper of 5 cubic yards capacity. J. F. Klaner is general manager. Their office is in the Globe building, Pittsburg, Kansas.

The W. W. Patterson Coal Company have moved their model-250 Marion steam shovel from North Pittsburg to a field 2 miles north of Minden adjoining the stripping plant of the Cherokee-Girard Coal Company and are now in full operation. Their main office is located in the Commerce building, Pittsburg, Kansas.

The Ellsworth-Klaner Company are having their new model-300 Marion steam shovel installed on a field south of Midway on the Missouri state line, where they have a contract to strip and take out the coal for the Pittsburg & Midway Coal Mining Company. An up-to-date tipple and necessary outfit are being erected and will soon be in full operation.

The Nesch Coal Company of Pittsburg are operating a 175-B Bucyrus steam shovel on a field of nearly 200 acres at Frontenac, 4 miles north of Pittsburg stripping coal for the Santa Fe Railroad. The overburden averages about 16 feet in depth. The coal is 22 inches thick of good quality and no horseback. A revolving crane has been installed to handle the tram cars. The crane is placed on the main ground level near the edge of the pit. The loaded cars are hoisted out of the pit onto the loading track, and the empties returned to the pit where they are loaded by hand. The crane has a capacity to handle 400 tons of coal per shift of eight hours. The advantage in this method is that it does away with the expense of laying tracks in the pit and of shifting them continuously, which is troublesome when there is water and mud in the pit after a rain. J. J. Nesch is general manager and A. A. Hammel, superintendent.

The C. H. Markham Coal Company of Pittsburg are operating a 150-B Bucyrus steam shovel stripping a field of 160 acres at Curranville on the Kansas City Southern Railroad. This shovel has been in operation for over 3½ years continuously and has turned over a lot of ground in that time. It is the first Bucyrus shovel to be installed in the Kansas field and is doing as good work as when first started. A feature of this type of shovel is that repairs have been very light, also in its economy of operation. C. H. Markham is manager of field operations.

Arthur L. Murphy, president of the new State Coal Company of Tulsa, Oklahoma, was a visitor at Pittsburg last month looking over coal stripping operations. His company purchased the first coal stripping steam shovel built especially for the purpose 6 years ago, that proved successful and have had two of them in operation ever since. One being located at Broken Arrow and the other at Collinsville, Oklahoma.

Eli Browning of Iowa and several of his friends spent several days at Pittsburg last month inspecting the coal fields.

The Cherokee Fuel Company held their semi-annual session October 14th at Pittsburg and had a banquet at the Stillwell Hotel. Among those present were Stuart Crowe, W. C. Shanks, R. L. Gray, J. H. Buckley, E. E. Trotter, J. H. Davis, B. L. Dunn, Walter Sergent and Richard Luke.

The Cherokee Fuel Company is an organized sales agency for several Coal Mining Companies in the Pittsburg district, having their general office in Kansas City and is closely identified with the J. R. Crowe Coal & Mining Company. A number of those present were salesmen for the company.

E. S. Nevius, president of the Nevius Coal Company, came down from Kansas City to attend to business matters one day last week.

R. J. Lawrence, general manager of the Carney-Cherokee Coal Company spent a day or two in Kansas City recently.

There are good opportunities for parties having means to engage in coal stripping in the Kansas field. Strip coal land can be bought or leased at reasonable prices and there is good money in the business. Further information will be furnished by addressing W. S. Russell, Stilwell Hotel, Pittsburg, Kansas.

The Bucyrus Company have a stock of repairs for their coal stripping steam shovels at the Pittsburg Machinery Company store room, which is a great convenience to owners of Bucyrus steam shovels.

The Pittsburg Machinery Company are located at 806 North Broadway where they occupy an entire building with a large stock of coal miners, mill, railroad and contractors supplies, tools, machinery, engines, boilers, pumps, motors, etc. for either steam, gasoline or electric. Also repairs for Bucyrus steam shovels. W. L. Sullivan, general manager, will be glad to see you.

Louisiana

News from New Orleans

By the Byrons

This office has a list of names of all classes of excavating machinery operators that can be recommended very highly. We will be glad to serve our contractor friends.

The south has had a big boost in the railroad construction line in the last three weeks. The Southern Railway has let a considerable amount of work on their line between Atlanta and Washington which consists of double tracking. Most all of this is heavy work and should certainly put a few of the idle outfits to work.

The iron and steel industry in Birmingham must be on a good road to prosperity, as most all of the mills are enlarging their plants. The Sloss Sheffield Steel & Iron Co. of Birmingham are enlarging their plant at Russellville, Alabama, and have just purchased two Little Giant steam shovels of the Bucyrus Company and twenty-five 4-yard dump cars of the Western Wheeled Scraper Co.

Your correspondent met Mr. W. E. Callahan in Dallas the other day, and he advises that their coal stripping contract at Lehigh, Oklahoma was progressing very nicely. Mr. Callahan has quite an amount of work in Texas under construction.

Mr. C. S. Miller, manager of the Memphis branch of the Western Wheeled Scraper Co. was a caller in this office last week, and reports that business is looking up. He further states that he just had the pleasure of placing twenty-five of his 4-yard dump cars with the Sloss Sheffield Steel & Iron Co. of Birmingham, for their mines at Russellville, Alabama.

The city of New Orleans has made wonderful progress in rebuilding since the tornado, which was the most severe storm in the history of the city. Everything in the city is in its normal condition and the prosperity is again taking a hand.

The government and the different levee boards of Louisiana are using every means possible to rebuild the levees below the City of New Orleans that were damaged by the gulf storm. It will cost over a $1,000,000 to put these levees in shape again and it must be done before the high water. Every available piece of machinery along the river is being rushed to this emergency work. Reports are that very good progress is being made, and that everything will be taken care of before next high water.

The C. G. Kershaw Contracting Co. of Birmingham, Alabama has been awarded contract by the Bonham Coal Co. of Birmingham for stripping their coal near Carbon Hill, Alabama. The above company is installing a 150-B Bucyrus coal stripping shovel on this work.

Mr. T. W. Crow of the Sunlight Mining Co. of Jasper, Alabama advises that he is loading coal on his new coal operation near Jasper, Alabama. Mr. Crow is inaugurating a new method of coal mining in the Alabama fields, and that is by open pit mining. He is using a 225-B Bucyrus coal stripping shovel to do the stripping with.

Any one wishing information regarding open pit coal mining in the Alabama coal field, will do well by addressing E. L. Byron, Morris Hotel, Birmingham, Alabama, or 1105 Hennen Building, New Orleans, Louisiana. Mr. Byron will be glad to give you complete details.

D. B. Gore advises that he is moving dirt with his two new Bucyrus dipper dredges on his drainage work near Geismar, Louisiana. The dredges are of 2½ and 3¼-yard capacity. Mr. Gore has about 2,000,000 yards in this contract, and expects to finish in record time.

The Hercules Co. of New Orleans, report good progress on their levee work on the Mississippi River. They are using two class-24 Bucyrus draglines on this work.

D. B. Hearin & Son, was awarded about 200,000 yards of levee work by the State Board. This work is emergency work caused by the storm, and is below the city of New Orleans. Mr. Hearin is moving his class-24 Bucyrus dragline from his St. James Parish levee work which he has just finished onto this work.

U. B. McCurly of Texas, was low bidder on about 1,000,000 yards of drainage work near Victoria, Texas. This work is suited for dragline machines.

The Atchafalaya Drainage & Levee District of Silver City Mississippi, let on October 22nd about 14 miles of drainage work, which consists of about 400,000 yards of excavation.

The Gibson-Hamilton Contracting Co. of New Orleans has been awarded by the government about 500,000 yards of levee work on the Mississippi River. This is machine work. Their price was .0923 per yard.

The Dameron-White Co. of Baton Rouge, has been awarded about 300,000 yards of levee work by the State Board of Engineers. Some of the work is on the Red River, and the other north of New Orleans, near Kenner. This is all machine work.

Minnesota

News from the Twin Cities

By Clapp, Nostrom & Riley, St. Paul

W. F. Carey of Siems-Carey Co., and family, left St. Paul a short time ago for San Francisco, from where they, on October 23rd sailed for Japan and China, intending to spend possibly eight of ten months in the Orient. Bill feels that after two years of strenuous work in British Columbia on the construction of the Grand Trunk Pacific he is entitled to a few months vacation and play. All his friends here wish him and his family a pleasant journey and a speedy return.

The revised plans for the Union Depot will not be placed before the City Council until the latter part of October. Some of the abstracts for river front property have not been delivered to corporation counsel, O'Neill, but it is expected they will be ready for his inspection October 25th.

A. Guthrie Co. of this city were this week awarded by the Wisconsin-Minnesota Light & Power Company of Chippewa Falls, contract of constructing the power dam. This contract consists of 600,000 yards of earth excavation; 40,000 yards of solid rock and 10,000 yards of concrete. In addition to the above quantities, the power company themselves are to do about

60,000 yards of concrete. A. Guthrie Co. intend to put three, 4-yard steam shovel plants on this work in order to complete the contract by September 1st, 1916. Including this contract, the Guthrie Co. will have thirteen steam shovel plants working out of the thirty-one plants which they own. Mr. Mundy informs me that their contract covering the Omaha bridge here in the city is practically completed.

Breckenridge—J. B. Brown of Litchfield, Minnesota has recently been awarded a contract for 83,000 cubic yards of ditch excavation at 12½c. The ditch has a 5 x 6 foot bottom, an average depth of 6 feet and a berm of 6 feet.

Missouri

St. Louis—J. E. Luick of 8102 North Broadway is still operating an 18-B Bucyrus revolving shovel for the East St. Louis Stone Company, at East St. Louis.

St. Louis and Vicinity

By A. C. Esser

Among the lucky contractors who have been awarded work recently in St. Louis are the following:

Webb-Kunze Construction Co., who have three large streets aggregating $150,000.

Skrainka Construction Co., who have four streets amounting to approximately $85,000.

G. Eyerman Construction Co., three streets amounting to approximately $60,000.

Ruecking Construction Co., street contracts amounting to about $20,000.

Frank A. Stiers and T. E. Cavanaugh are finishing their street work which were let in the summer. Mr. Stiers has three streets aggregating $45,000 and Mr. Cavanaugh two streets amounting to about $30,000.

Perkinson Bros. Construction Co., also have a small contract under way, and are on the lookout for more.

All these hustling contractors are always ready and willing to handle a paving job of any size, and are shaping themselves for the large amount of city paving which will be let this winter for an early spring campaign of construction planned by the St. Louis Board of Public Service.

Fruin & Colnon Contracting Co., F. A. Grant, and Harrington Bros., who were recently awarded contract for grading subdivision for the University Park Realty Co., have made a very nice start on this work under very favorable weather conditions, and at the present time have five elevating grader outfits and about 60 dump wagons making the dirt fly. The approximate yardage will run between 500,000 and 600,000 cubic yards.

M. C. Connors & Co., of Chicago, and Harrington Bros., of St. Louis, report fine progress being made on their $40,000 water main contract for the City of Christopher, Illinois. T. J. Harrington, and Henry Phelan are in charge of this work.

St. Louis—Augustus W. Jones formerly connected with the Robert Grace Contracting Company of Pittsburg, has recently been appointed vice-president and general manager of the Carter Construction Company of this city.

Ohio

Cleveland—Thomas W. Crisman is operating a 70-C Bucyrus shovel for the Walsh Construction Company, here.

Oklahoma

Bunch—The List & Gifford Construction Company, 216 Dwight building, Kansas City, Missouri, are making good progress on their contract for the Kansas City Southern Railroad, here. The work is grade reduction, the raising of tracks and the widening of banks, the excavation amounting to about 250,000 cubic yards. They are using one 70-ton Bucyrus shovel, four locomotives and forty 12-yard Western dump cars. The work will be finished about February 1st.

Beaver—The Beaver, Mead & Englewood Railroad Co. has awarded the contract for the extension of line from Beaver to Forgan to the Beaver Construction Co.

Pennsylvania

Wilkes-Barre—Edward George who formerly operated a Bucyrus 14-B electric shovel for the Wilkes-Barre Railway Company, is at present with Porter Bros. This company expect to finish the work that they are now on shortly, when Mr. George will be open for another job. His son Edward is now operating the Wilkes-Barre Railway Company's 14-B which is now loading ashes for balasting the tracks.

Rhode Island

Providence—W. Reid is now employed by the Wilson & English Construction Company, here.

Texas

Donna—Bids were opened on November 1st by the Donna Irrigation District, D. H. Barr, secretary, for the enlargment and completion of the present canal system. pumping plant. etc. Open ditch work requires 2,000,000 cubic yards of excavation. Estimated cost $425,000. C. S. Clark is engineer.

Utah

Salt Lake City—The Interurban Construction Company, Box 1169 of this city are completing twelve miles of electric road from Springville to Payson, Utah. They are subbing part of their work to W. A. Smith of Spanish Fork, Utah. The quantity of material to be moved is 75,000 cubic yards which they expect to complete about December 1st. They are using a 60-C Bucyrus steam shovel, twenty dump cars, two locomotives and one electric motor.

Ogden—The Utah Construction Co., is establishing its first construction camp, north of the Ogden River, in preparation to start work on the Ogden-Harrisville cut-off of the Ogden, Logan & Idaho Railroad.

Virginia

Richmond and Vicinity

By J. G. Skelton

Second track work on the Southern Railway has been awarded to the following firms:—Arrowhead to Elma, 20 miles, to W. W. Boxley & Company, of Roanoke, Virginia. Sycamore to Gretna, 4 miles, to Hall-Crawford Construction Company, of Macon, Georgia. Whittles to Dry Fork, 9.7 miles, to Robert Russell of Danville, Virginia.

Cornell-Young & Company of Macon, Georgia have sublet their work as follows:—The concrete work to J. R. Adams & Company, Duncan, South Carolina. The team work to Smith & Kyle, Charleston, South Carolina. The shovel work to A. & C. Wright, Ashland, Virginia.

Gretna—The grading on the Southern Railway between Dry Fork and Gretna, Virginia that was awarded to Robert Russell sometime ago, is being held up on account of change of line and right of way. When this matter is settled, Costello Bros. are going to put two steam shovels and a team outfit on one end of the line and Robert Russell is going to start on the other end. This work includes 11 miles of construction and is quite heavy.

Roanoke—Norfolk & Western Railroad is second tracking 11 miles of its line, along New River, 9 miles of this is being done with company forces; the remainder has been let to J. J. Boxley & Son, Roanoke.

Washington

Kelso—Contract for the construction of 17½ miles of dike in District No. 1 has been awarded to Collier & Stevenson for $99,000.

Wisconsin

South Milwaukee—Paul R. Parker has resigned from the office of chief engineer and works manager of the Yuba Construction Company of Marysville, California, to take charge of the equipment and operation of the Tin Bentong No Liability Company, an Australian tin dredging firm, with headquarters at Penang, Strait Settlements. This company has recently purchased a 7-foot tin-placer dredge from the Bucyrus Company.

Wyoming

At a recent meeting at Yellowstone Park, a new national highway association was formed, known as the U. S. National Highway Brick Association. The purpose of this association is to develop and build a permanent automobile highway approximately 3,500 miles in length which will make a circuit of the National Parks of the west beginning at Denver running through the Yellowstone and the Glacier National Parks to Olympia, Washington, thence down the Pacific Coast to Los Angeles and from there back to Denver by the way of Salt Lake City.

Fort Laramie—F. A. Mengel, whom we recently reported as having accepted a position with the Reclamation Service on the Flat Head Project in Montana, is now with Winston Bros. Company here.

PROSPECTIVE CONSTRUCTION

Alaska

It is stated that an appropriation of $10,000,000 will be recommended at next session of congress for continuing construction of Government's Alaskan Railroad.

Arkansas

Gould Southwestern Railway is reported to be considering extending its line west to Rison or Fordyce and north to Pine Bluff.

County Court, Pine Bluff, has approved a petition for the formation of Road District No. 12 for the construction of a road about 21 miles long.

California

Bids will be received until November 10th by the Board of Public Works of San Francisco, for the construction of a railway from Rosasco into Hetch Hetchey Valley for use in the construction of the new water supply project of the city. The line will be 67 miles long. M. M. O'Shaughnessy is city engineer.

Contracts will soon be let for the construction of the new Patterson & Western Railroad, to be built by the Mineral Products Company, Modesto.

The commissioners of Sacramento River West Side Levee district have instructed their engineers to prepare plans and specifications for a continuous dredge or sand levee from Knights Landing to Colusa, 50 miles, to cost $500,000.

The Atchison, Topeka & Santa Fe Railway has been ordered to construct a line to connect Oceanside with Temecula, distance about 25 miles. Cost about $822,000 for construction through Rainbow Valley or about $657,000 if by way of Fallbrook.

Canada

Construction work is to be pushed on an additional 25 miles of track of the Canadian Pacific from Foremost, Alta,, east to a point about 10 miles from Lake Pakowski. This will form part of the through line between Weyburn, Sask., and Lethbridge, Alta., and when this section is finished there will only be a gap of about 44 miles between the line now terminating at Altawan, Sask., and the east end of the Foremost extension.

Colorado

Bids will be received until 2 P. M., November 4th, by the U. S. Reclamation Service, for about 340,000 cubic yards of canal excavation in vicinity of Loma and Mack, Colorado.

Florida

The Central of Georgia Railway plans to extend its line to Munson, Florida, to connect with the lumber road of Stearns & Culver Lumber Co. C. K. Lawrence, Savannah, is the chief engineer.

The Atlantic Coast Line announces that an extension is to be built from the present southern terminus of the line now in operation to Sebring, Florida. The proposed route is southeast from Sebring to a point on the shore of Lake Okeechobee, about 60 miles.

Georgia

Work will start soon on the construction of the New Union Depot at Macon. Clearing operations are now in progress on the site.

It is being planned by Americus, Hawkinsville & Eastern Railway, Americus, Georgia, to construct a railway from Americus to Hawkinsville, distance about 55 miles.

Construction will be started this month on the Lula-Homer Railroad. The company proposes a line from Belton, Georgia, southeast to Homer, and then east to Hartwell and to Anderson, South Carolina, a distance of eighty-two miles. About three-fourths of the grading work on the section from Lula to Homer, has been completed. The contract for construction and equipment of the line has been let to W. J. Redmond, Atlanta, Georgia. D. G. Ziegler, Lula, Georgia, is chief engineer.

Idaho

The work of completing the survey of the State Highway at Ashton has been completed and bids will soon be called for this work.

Illinois

A four-track roadbed from Chicago to Sterling or probably as far as the Mississippi River will be constructed by the Chicago & Northwestern Railway, W. H. Finley, chief engineer, Chicago, Illinois.

Kentucky

The Cincinnati, New Orleans & Texas Pacific Railway Co. has had surveys made for double-tracking its line between Somerset and Flat Rock and from Tateville to Greenwood. C. Dougherty, Cincinnati, Ohio, is chief engineer.

Minnesota

It is reported that the Great Northern Railway is considering reviving project for cut-off from Hutchinson, Minnesota, to Redwood Falls, Wabasso, Tracey, Currie, Slayton and Hardwick to Garretson, South Dakota.

The Great Northern Railway is reported to be contemplating extending its line from Milaca northeast along the west side of Mille Lacs Lake to Hill City.

It has been stated by the Great Northern Railway Co., A. H. Hogeland, St. Paul, chief engineer, that they will construct a line from Virginia to Tower, a distance of about 30 miles.

Minneapolis, St. Paul & Sault Ste. Marie Railway Co,, contemplates a line from Duluth or Mahnomen to Carrington. North Dakota. G. R. Huntington, Minneapolis, is general manager.

The Duluth & Iron Range Railway Co. will be extended to the Consolidated Vermilion & Extension Co.'s Mud Creek mine. W. A. Clark, Duluth, is chief engineer.

Missouri

Kansas City, Mexico & Orient Railway is reported to be planning to start construction soon on its proposed extension. Extensive improvements along the line south of Wichita, Kansas, are also reported under consideration.

Bids will be received until 2 P. M. November 15th, by W. S. Edwards, secretary, St. John Levee and Drainage District, for 300,000 cubic yards of levee work. Miller Engineering Co., engineers, Little Rock, Arkansas.

Steps have been taken for the formation of a drainage district for the reclamation of land in northern part of Marion County and southern end of Lewis County. About 15,000 acres will be reclaimed. The district will extend southward from Alexandria and Wayland to Gregory, and construction will include a levee along the Mississippi River, 18 or 20 feet in height. J. M. Dawson, Keokuk, Iowa, is attorney for the district.

Missouri Pacific Railway plans to extend its line from Hollister south to beyond Bergman. E. A. Hadley, St. Louis, is chief engineer.

Sugar Creek Drainage District proposes the construction of 16 miles of dredge ditch. Contract may be let soon.

Montana

The Bighorn Canyon Irrigation & Power Company of Hardin, Montana is planning a project, which will cost in the neighborhood of $13,000,000. This project involves the construction of 68 miles of standard-gage railroad from a point three miles east of Custer, Wyoming on the Northern Pacific Railroad to the mouth of the Bighorn Canyon, the building of a dam and power plant in the canyon and the installation of an irrigation system for watering 100,000 acres of land. Surveys for the railroad have been made. The total cost of this road is estimated at $800,000. Surveys for the irrigation system are not as yet completed. Preliminary work on the Bighorn Project has been under way for three years and the development is now ready for finance. John J. Harris of Hardin, Montana, is president and A. W. Koch of Hardin, is chief engineer.

Great Northern Railway Co. will commence construction in the spring of a line in Winhett section.

Nevada

The Richmond Mining Co. is planning a new railroad from Eureka to Elko. The road is to be built by way of Mineral Hill, Unison and Bullion.

New York

The Long Island Railway Co. has applied to the Public Service Commission of First District for permission to build a line from Flushing to Creedmoor, about 5.4 miles. J. R. Savage, Jamaica, is chief engineer.

North Carolina

It is being planned by the Seaboard Air Line Railway Co. to spend about $200,000 for revision of line and grades between Sanford and Apex.

Oregon

Oregon, California & Eastern Railway Co. has been organized and proposes construction of about 400 miles of standard-gage lines for Central Oregon and adjacent territory. Reconnaissances and surveys are already under way. Probable expenditure is about $7,000,000.

The commissioners of Coos County, Marshfield, rejected all bids for 140,000 cubic yards of earthwork on county roads. This will be re-advertised soon.

The State Highway Commission has appropriated $90,000 to assist Wasco County in building the link in the Columbia highway from Hood River to Mosier, a distance of 8 miles.

The Oregon, California & Eastern Railroad plans the construction of a system of rail lines through central Oregon to open up new routes to San Francisco and Nevada. Mr. Strahorn has been elected president.

Pennsylvania

The proposed Lackawanna Railroad cut-off between East Stroudsburg and the Delaware Water Gap is now believed to be a certainty. It eliminates eight curves and all grade crossings between these two points. More than one mile of track will be gained.

Tennessee

The Louisville & Nashville Railroad is reported to have made surveys and is said to be planning to begin construction soon of a line from Etowah to Chattanooga.

The Nashville, Chattanooga & St. Louis Railway will construct a spur to Sylvan cotton mills. This work calls for 9.500 cubic yards of earth excavation, 10,000 cubic yards of rock excavation, and will be done by company forces.

Texas

The San Antonio & Austin Interurban has revived its plans for building an interurban electric line between San Antonio, Texas, and Austin, about 80 miles, and negotiations for financing the project are now in progress. The proposed line will pass through the towns of New Bramfels, Hunter, San Marcos, Kyle, Buda and Manchaca. A survey for the route was made some time ago and much of the right of way has been secured.

A. R. Cradford, Normangee, and associates, plan an interurban railway from Beaumont to Waco, via Normangee, Madisonville, Huntsville and Cold Springs, about 200 miles.

The Southwestern Traction Co. having surveys made for its proposed interurban railway between Dallas and Stephenville, via Cleburne and Glen Rose, about 100 miles. W. G. Haack, Temple, is general manager and purchasing agent.

Virginia

A road which will be known as the Richmond, Rappahannock & Northern Railroad, Warner Moore, president, West Point, Virginia, will construct a railroad from West Point to Urganna, Virginia, a distance of about 17 miles.

Washington

W. A. Kelly, drainage and irrigation engineer for U. S. Department of Agriculture, is making surveys for the reclamation of 3500 acres in King and Snohmish Counties.

Robert F. Foster, county engineer, will start survey in about one month, for the permanent highway work for 1916, leading east from Mansfield. Contract will be let in the late winter or early spring.

West Virginia

A road which will be known as the Pond Fork Railway Co., Huntington, West Virginia, has been chartered to construct line from Madison, West Virginia, up Pond Fork of Coal River to its head, distance about 25 miles.

The Western Maryland Railroad will construct a spur from the Monongahela River road of the Baltimore & Ohio to Wyatt, eight miles, to develop some coal land owned by the Consolidation Coal Co.

It has been decided by Blade Creek Coal Co., Fayetteville, West Virginia, to construct a railway from Ephriam Creek to mine near Landsburg, a distance of about 11 miles.

Wisconsin

The Illinois Central Railroad plans to extend its line from Madison, Wisconsin to Champion, Michigan. A. S. Baldwin, Chicago, Illinois, is chief engineer.

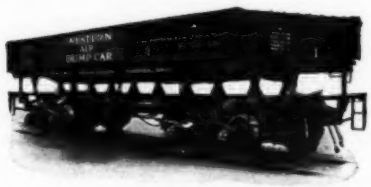
TRADE NOTES

H. N. Steinbarger, the Denver representative of the Bucyrus Company, has recently changed his office from the Sugar building, to 1539 16th St., Denver.

The Haggard & Marcusson Company of Chicago, manufacturers of the "Tiger" Steel Bunks, report that there is a distinct evidence of an awakening in fundamental activities, judging from inquiries and business which they have received. Many sources which have been quiet for a year or more seem to show signs of coming to life. This awakening appears to be distributed over all sections of the country which is, without doubt, a note of encouragement.

The property and business of E. I. du Pont de Nemours Powder Company of New Jersey has been sold and transferred to E. I. du Pont de Nemours & Company of Delaware, a corporation organized for the purpose of taking over and carrying on the business.

The new company assumes all liabilities of the old company except capital stock and funded debt and will carry out all contracts of the old company, there being no change in the personnel of the management, operations or methods of handling the business. It will issue capital stock to the amount of $120,000,000



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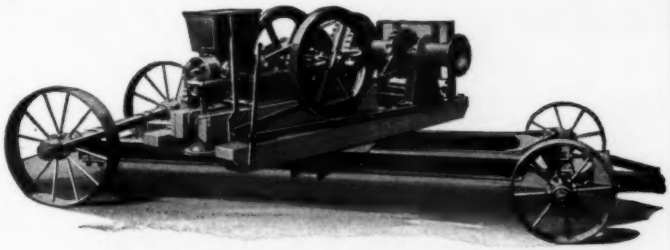
WM. A. HANSELL, Jr
Supt. Public Works."



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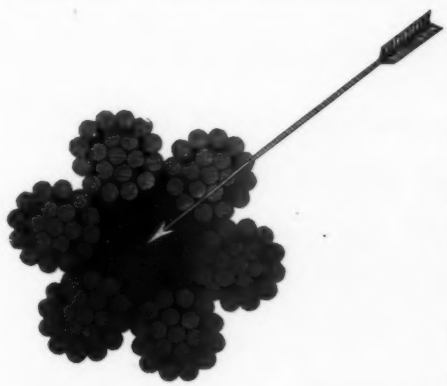

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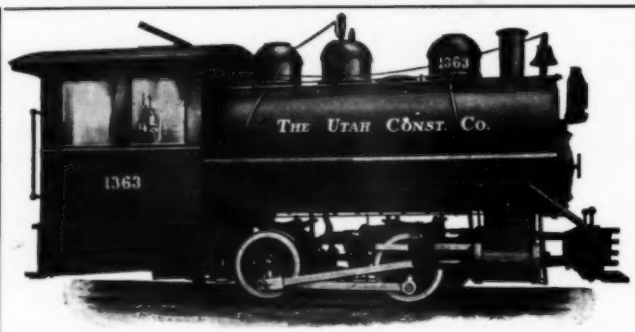

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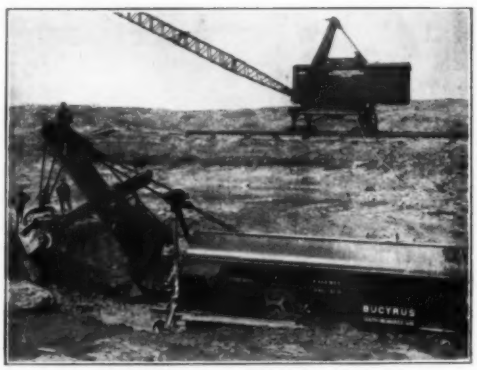

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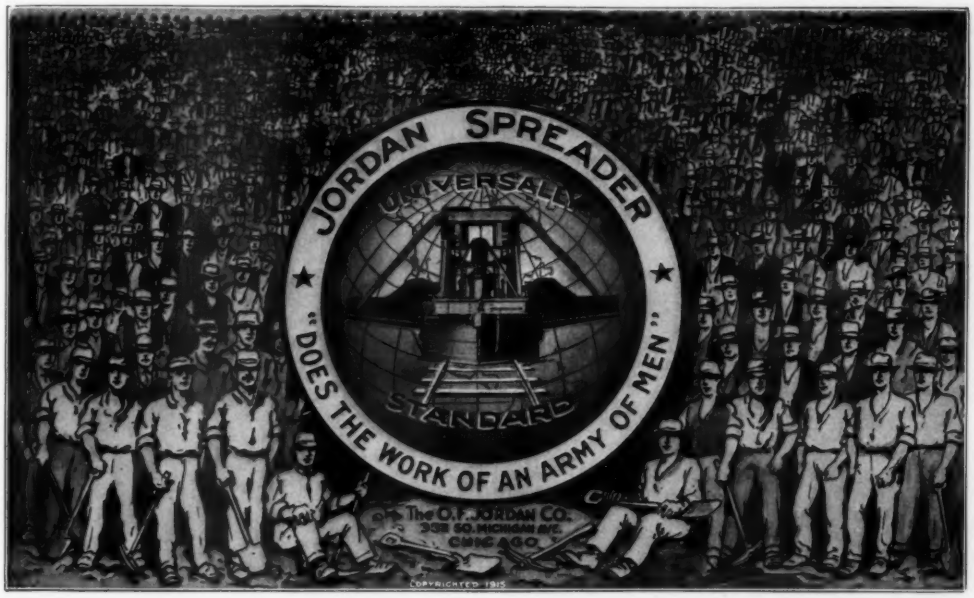

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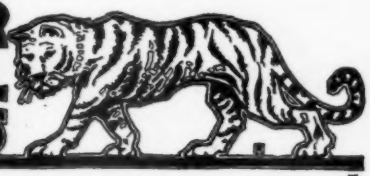

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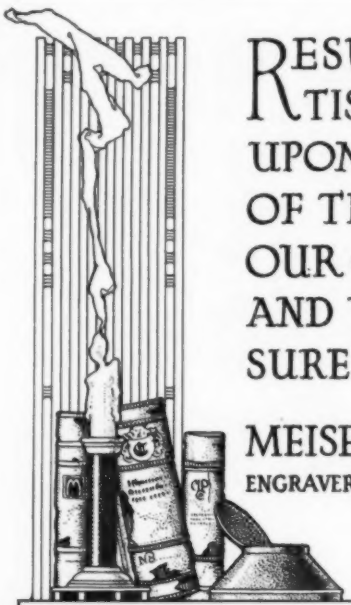

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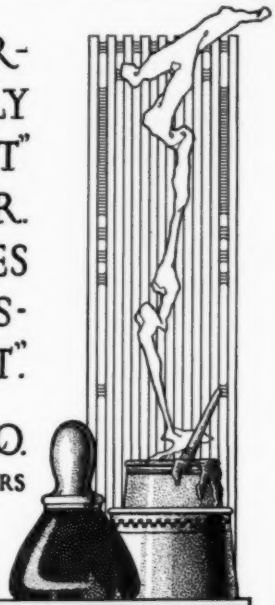

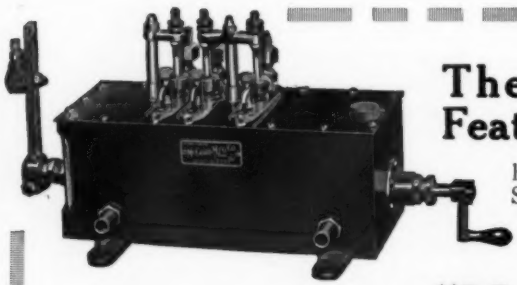

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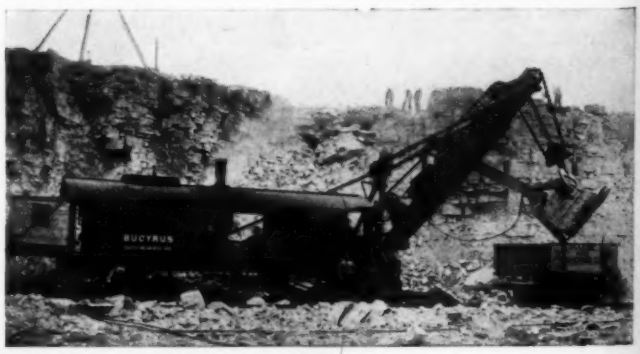

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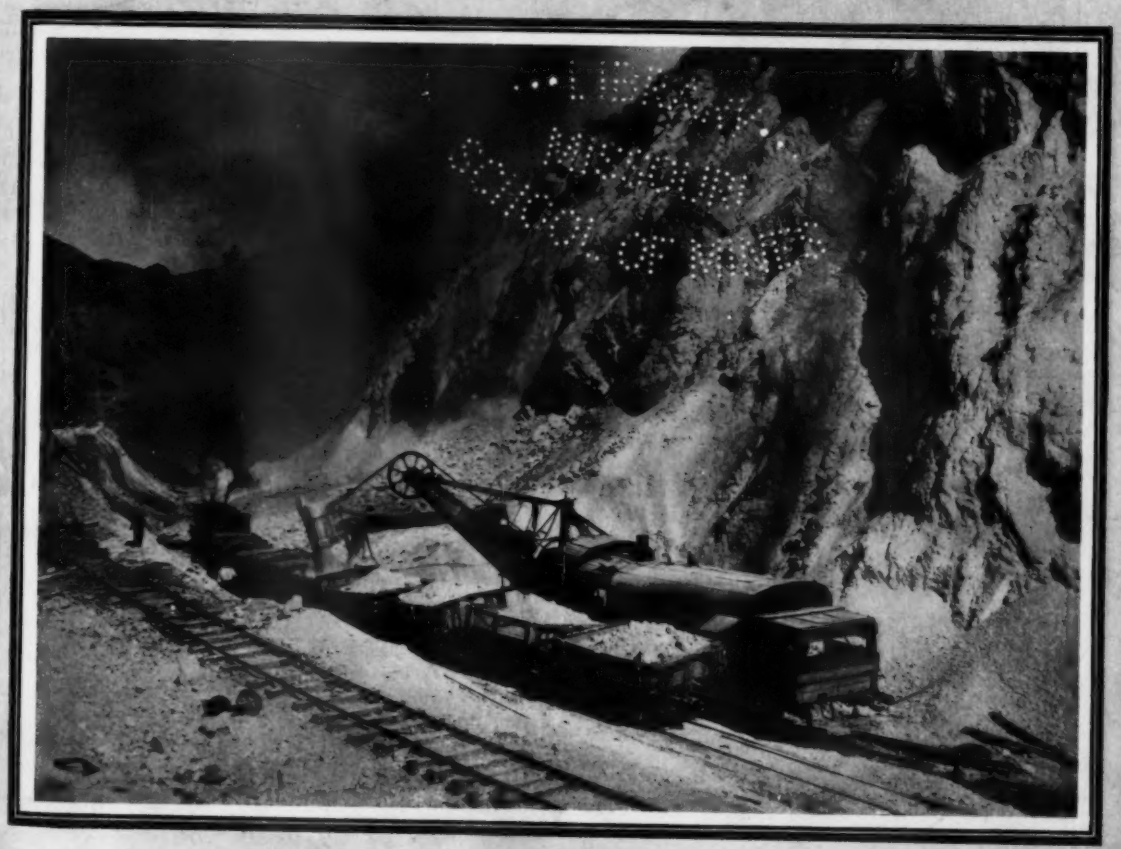

Volume 12 DECEMBER, 1915 Number 3

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The work was digging drains on the Fargo Basin Drainage District of the Boise Irrigation Project.

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